Post-fire Site Rehabilitation Special Investigation: Interim Report

Special Investigation

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The Investigation

Introduction

Forest fires generated a high degree of public interest during the summer of 2003. Although many people are aware of government's role in fighting forest fires, they may not know that after fires are out, significant work may be required to rehabilitate sites impacted by fire suppression activities.

The *Forest Fire Prevention and Suppression Regulation* (FFPSR) deals with site rehabilitation. It requires a person who carries out fire control or fire suppression operations to stabilize all fire access trails, fire guards and other fire suppression works to ensure that natural drainage patterns are maintained and surface soil erosion is minimized. If heavy equipment was used to construct fire access trails, fire guards, fire camps, staging areas or heliports, a site rehabilitation plan must be submitted to a designated forest official for approval soon after the fire is suppressed.

The *Forest and Range Practices Act* (FRPA) permits the Forest Practices Board to conduct special investigations to determine a party's compliance with certain requirements of FRPA and forest regulations, including FFPSR. In light of the significant public interest in fire and its widespread impact, the Board decided to conduct a special investigation of post-fire site rehabilitation to fulfil its role as an independent public watchdog.

Scope

This investigation considers whether:

- comprehensive and effective rehabilitation plans are prepared for every fire where required;
- rehabilitation requirements of FFPSR are being implemented in the field; and
- rehabilitation treatments are effective in controlling water and erosion damage.

This investigation focuses on the rehabilitation of sites affected by fire-fighting efforts because there are specific *Forest Practices Code of British Columbia Act* requirements to rehabilitate those sites. It does not examine the reforestation or treatment of burned forest, nor does it address fuel management. There is no specific *Forest Practices Code of British Columbia Act* or *Forest and Range Practices Act* requirement to address overall fuel loading in provincial forests or rehabilitation of burned forest.

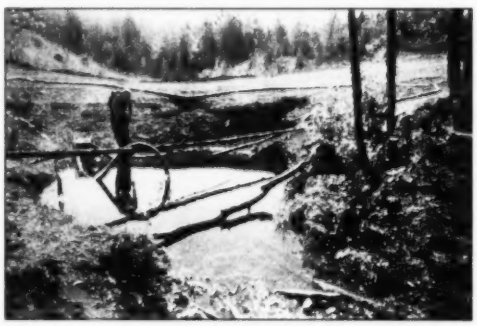
Approach

The investigation has both office and field components. This is an interim report on the office component of the investigation. For the office component, all fires larger than 250 hectares that burned between 2000 and 2003 in the Southeast, Cariboo, and Kamloops fire centre areas were reviewed. Appendix 1 is a map of the provincial fire centre areas (see Page 11). The purpose of this review was to determine whether or not government had prepared rehabilitation plans as required by FFPSR, and to interview government staff to identify rehabilitation issues and challenges. The purpose of issuing an interim report is to increase awareness of rehabilitation issues before the next fire season.

The purpose of the field portion will be to determine whether or not rehabilitation plans are being implemented and whether or not the treatments are effective. The Board will report on the field portion of the investigation in the fall of 2004.

What is Fire Site Rehabilitation?

To understand fire site rehabilitation, it is important to understand what happens during forest fire suppression. Trails and roads may be built quickly to allow equipment to reach the fire. Fireguards, which are intended to stop or slow the spread of a fire, may be built by hand or by machine. Fireguard construction can involve knocking down or falling trees, bulldozing the forest floor to expose bare soil, and crossing streams with heavy machinery. Dams and sumps may be built in streams. Camps, staging areas and helipads may be built. All of these structures are usually built under emergency conditions without the benefit of detailed advance planning.



Sump - Cedar Hill Fire, near Falkland

Fireguard – Chilko Fire, near Nunsti Provincial Park

The kinds of structures commonly built during fire suppression would generally not be permitted in non-emergency situations. For example, driving a bulldozer through a creek could be considered "damage to the environment" and, if so, would be prohibited by section 46 of FRPA. However, section 49 of FRPA provides an exemption for persons carrying out activities reasonably necessary to control a fire.

If sites disturbed by fire suppression activities are not soon rehabilitated, water quality can be negatively impacted by excessive sedimentation. Erosion and landslides can also occur, and public safety can be threatened. Non-rehabilitated works therefore pose a potentially significant source of liability to government.

Section 36 of FFPSR sets out the requirements for rehabilitation. To meet the requirements of sections 36(1) and (2) of FFPSR, rehabilitation must ensure that natural drainage patterns are maintained and surface soil erosion is minimized. In addition, rehabilitation must include:

- stabilization and revegetation of soil disturbed or exposed by heavy equipment
- disposal of slash and debris
- stabilization of the stream channel and stream bed at stream crossings
- stabilization of sump and dam locations

Newly constructed fireguard – Venables Fires, near Ashcroft

Rehabilitated fireguard – McClure Fire, near Barriere

Examples of rehabilitation treatments include:

- stream channel and bank re-establishment
- recontouring sumps and dismantling dams
- re-establishing slopes and natural drainage patterns
- stabilizing cuts and fills
- seeding disturbed areas
- felling, bucking, scattering and/or burning slash

If heavy equipment was used to build trails, fireguards, camps, staging areas or heliports, section 36(3) of FFPSR requires that a person responsible for stabilization activities prepare and submit a site rehabilitation plan to a designated forest official for approval. The plan must be submitted within 10 days of the fire being suppressed.

Rehabilitation Planning

For small, low-risk fires, the person in charge of the fire – the incident commander – is usually also responsible for rehabilitation planning. On large fires, an individual or a team will be assigned rehabilitation duties. They are responsible for ensuring that the rehabilitation plan is completed and submitted for approval to the designated forest official. The designated forest official may also provide a rehabilitation plan to the land manager for comment and approval where possible, but there is no legislated requirement to do so. The land manager may be the forest district manager or BC Parks manager.

Rehabilitation plans range from simple, two-page forms to binders of detailed site plans and work schedules, depending on the size and impact of a fire. Professionals are sometimes hired to assist government staff in rehabilitation planning. Terrain stability assessments and archaeological overview assessments may be required. In some cases, planning and consultation may include First Nations, BC Parks staff, the forest industry, federal and provincial agencies, and the general public. For example, in one forest district, a "fire site restoration planning group" was established to coordinate fire rehabilitation, salvage activities, and the treatment of Crown land burned by fire, but not affected by suppression activities. The group included district staff, licensees, consultants, protection staff and First Nations. Part of the group's responsibility, mandated by the district manager, was to review rehabilitation plans.

Timing

Rehabilitation often begins before the fire is completely out. On large fires, it may be possible to begin rehabilitating the area where the fire started while the fire continues to burn elsewhere. Generally, the goal is to begin rehabilitation work as soon as possible, while equipment and personnel are still on site. Ideally, work is completed before winter sets in; however that is not always possible. For example, several fires in the Southeast and Kamloops fire centres burned late in the 2003 season, and snow fell before rehabilitation could be completed.

Issues

During the office interviews, Ministry of Forests protection staff identified a number of rehabilitation issues and challenges, some of which contribute to delays in prompt rehabilitation after a fire. These issues are discussed below.

Expectations of What Must Be Rehabilitated

FFPSR is specific about what has to be rehabilitated after a fire. Trails, fire guards and other works built for suppression must be stabilized, natural drainage patterns must be maintained, and surface soil erosion must be minimized. Only those structures built as part of fire suppression must be rehabilitated. However, the public and agencies often expect that general fire damage must be rehabilitated and that site productivity must be restored. That is not the case. For example, if a range fence was burned by a fire, a rancher may expect government to

replace the fence. However, the protection program is only responsible for replacing the fence during rehabilitation if it was destroyed during suppression of the fire (e.g. knocked down by a bulldozer), but not if it was destroyed by the fire itself.

In the southern interior in 2003, a fireguard was constructed on private land and mature trees were knocked down. The landowner asked that mature trees be planted to replace those destroyed by the fireguard. Government refused because it is required to take steps to minimize erosion and to compensate the landowner, but it is not required to restore the property to its original condition.

Resolving these differing expectations can take time, potentially delaying the implementation of rehabilitation plans.

Seed

Fireguards and other disturbed areas are commonly seeded with grass as part of rehabilitation treatments. The establishment of fast-growing plant cover can help to minimize erosion and stabilize soil, among other benefits. But seeding can also impact the native plant community and biodiversity. How does one decide where to seed, what seed mix to use, and the application rate? Should the seed mix be different in a park versus Crown forest land? Is using non-native seed appropriate, and is seeding required at all?

In the southeast, a stakeholder asked that seed be purchased from a specific supplier. Protection staff had to consider the issues, consult with specialists, and determine if the requested seed would be appropriate. In Kamloops, BC Parks and the Ministry of Forests worked together to agree on an acceptable seed mix for use in Cornwall and Bonaparte Parks. Dealing with these types of issues takes time for staff to work out, and can delay the implementation of rehabilitation.

Ideally, seed issues should be addressed before a fire starts so that once rehabilitation begins, all stakeholders have already agreed on the appropriate seed use, mix and application rate. One way to address this would be the creation of regional guidelines for seeding. The Southern Interior Forest Region is currently working on draft guidelines for seed use within the region. They have already encountered the issues listed above, and found the process to be contentious.

Fire Management Planning

When a fire starts, protection staff often meets with the land manager to discuss a fire analysis strategy (FAS). The FAS identifies the values at risk if the fire grows. These might include public safety, private land, parks, timber and environmental values. The FAS sets out the general fire control objectives, strategies and alternatives. Using the FAS, the incident commander can plan suppression with these values in mind.

When a fire is burning vigorously, there is no opportunity to consider every value and plan suppression activities to avoid them. However, when planning the location of a fireguard, for

example, it would be beneficial to know the location of water intakes or cabins since rehabilitation may be difficult, expensive or impossible once the fireguard is built.

This is the benefit of fire management planning. If values were known before the fire starts, fireguards and other suppression works could be planned in such a way as to minimize their impact, and reduce rehabilitation costs. Staff in the Southeast fire centre suggested that this kind of planning should occur in the winter, before the next fire season.

Coordination of Salvage Activities and Disposition of Timber

When roads, trails and fireguards are built for suppression purposes, merchantable timber is harvested and piled, and there are often opportunities to salvage timber after the fire. The district may put this wood up for sale, and plan to use trails or guards to access the wood. The sale can take some time, however, conflicting with the incident commander's responsibility to rehabilitate the fireguards and trails as soon as possible. If not coordinated, trails and guards may be rehabilitated, only to be opened up again when a licensee needs access. There is a definite need for coordination of activities in these circumstances between the land manager, district staff, licensees, BC Timber Sales, and protection staff.

An issue regarding disposition of timber from the Kutetl fire near Nelson arose in 2003. Part of the fire burned in West Arm Provincial Park. BC Parks hoped that the merchantable wood from the park could be sold and the proceeds used to finance rehabilitation within the park. First Nations were also interested. However, wood from the park can only be disposed of in accordance with the *Forest Act*. That Act requires that the proceeds go to general government revenue, not to BC Parks. Sorting out this issue took time and delayed rehabilitation.

Shortage of Experienced Line Locators

A line locator is a person who walks through the bush marking a path for heavy equipment to follow when building fireguards. When deciding the location of fireguards, an experienced line locator with knowledge of the fire, local terrain, equipment capabilities and forest values identified in the fire analysis strategy can significantly reduce the amount of rehabilitation that will ultimately be required. With rehabilitation in mind, he or she can avoid environmentally sensitive areas like streams and steep slopes where possible.

The number of fires in the summer of 2003 created a shortage of experienced line locators, particularly in the southeast. In the Kamloops fire centre, staff said that they prefer to use forest industry workers for line locating where possible to take advantage of their local knowledge and skills. However, in a busy fire season, forest industry line locators may not be available, and the use of out-of-province suppression crews with limited local knowledge can aggravate the problem.

Cultural Heritage Information

Cultural heritage values such as First Nations' village or burial sites can be severely impacted by fire suppression activities. When building a fire guard, a bulldozer operator may not realize

he or she is working in a sensitive area. Ideally, the operator should know the location of cultural heritage values so that sensitive sites can be avoided. However, First Nations may be reluctant to provide such information to government staff, preferring that the location of these sites be kept secret so they are not disturbed.

Some cultural heritage information is available from the archaeology branch of the Ministry of Sustainable Resource Management. Ministry of Forests protection staff were able to obtain confidential information relevant to the 2003 Chilko fire and used it to protect cultural heritage values. Unfortunately, information was not available for the complete fire area, and a previously unidentified feature was slightly impacted by a bulldozer during suppression activities. The location of the feature remains confidential, and staff provided a report to the archaeology branch when rehabilitation was completed.

In the Southeast fire centre, the protection program funded an archaeological field reconnaissance of fires in the Rocky Mountain and Kootenay Lake forest districts after fires were out but before rehabilitation began. The purpose of the reconnaissance was to determine if archaeological resources were present, and if so, to recommend appropriate management techniques during rehabilitation. Such surveys are useful for minimizing additional damage, but it is preferable to have such information available in advance when planning the location of fire guards so that impacts can be avoided rather than mitigated after the fact. The challenge is balancing the desire to keep the location of cultural heritage values secret with the need to protect the sites during fire suppression.

Rehabilitation Training

The protection program developed a fire rehabilitation course in 2001. Its goal is to give staff an understanding of the potential environmental impacts of suppression activities and demonstrate how to mitigate those impacts and reduce overall costs to government. The course is for incident commanders and those in charge of rehabilitation. Protection staff suggested that a similar course for individuals working the fire line should be considered, based on the premise that if everyone is thinking about future rehabilitation during suppression, impacts and costs can be reduced.

Protection staff in the Southeast fire centre also identified a need for best management practices (BMP) for fire rehabilitation. BMPs would provide the best available technical information for protection staff to achieve effective and cost-efficient fire rehabilitation.

Size of the 2003 Rehabilitation Program

According to protection branch, the 2003 fire season was the "most catastrophic in BC's recorded history." The average number of hectares burned per year over the past 10 years is about 25,000 hectares. In 2003, over 266,000 hectares burned in over 2500 separate fires. The population of fires larger than 250 hectares studied in this investigation reflects the enormity of the 2003 season. There were 63 of these fires in 2003, compared to 14 in 2000, 2001 and 2002 combined. In the Southeast fire centre, protection staff had difficulty finding enough qualified

professionals to prepare rehabilitation plans. Staff were borrowed from district offices and others were brought out of retirement to assist.

The amount of rehabilitation on individual large fires was also significant. For example, on the 26,616-hectare McClure fire north of Kamloops, 374 kilometres of fireguard was built. Rehabilitation prescriptions were prepared in September and October of 2003, and rehabilitation work was carried out until snowfall. However, due to the enormity of the task, rehabilitation could not be completed before winter set in.

Continuity and Early Assignment Rehabilitation Responsibility

Protection staff recommended that an individual should be assigned the rehabilitation responsibility in the early stages of a fire. This individual should remain assigned to the fire until rehabilitation is complete, to ensure continuity. Early assignment helps to reduce rehabilitation obligations and costs, as rehabilitation can be kept in mind during suppression activities, and equipment can be coordinated more effectively. In addition, this individual can open discussions with other agencies such as BC Parks and begin planning rehabilitation in a coordinated manner.

Results of the Office Review

In March 2004, the Board visited the three fire centres and reviewed all fires larger than 250 hectares that burned between 2000 and 2003. The purpose of the review was to determine whether or not government complied with the fire rehabilitation planning requirements of the Code.

Seventy-seven fires met the criteria, and heavy equipment was used on 64. Therefore, the Code required that 64 fire rehabilitation plans be prepared. According to subsection 36(3) of FFPSR, these plans had to be submitted to the designated forest official within 10 days of the fire being put out. Specific data are provided in Appendix 2 (see Page 12).

Results

12 fire rehabilitation plans for the 2003 season were not submitted to the designated forest official within 10 days of the fires being suppressed, as required by section 36(3) of the FFPSR. 10 of the 12 were submitted by November 18, 2003. The remaining two plans were not prepared in 2003. We examined the reasons for the delays; some have already been identified in this report.

Discussion

In the Southeast fire centre, protection staff had difficulty finding sufficiently qualified professionals to prepare rehabilitation plans, as the number of plans required and the size of some of the fires strained resources beyond capacity. For example, on the Lamb Creek fire, over 400 kilometres of roads and fireguards had to be examined and prescriptions proposed.

In one forest district, the district manager's requirement that rehabilitation plans be reviewed and approved by the fire site restoration planning group delayed the implementation of rehabilitation plans. However, the district considered the delay to have been beneficial because rehabilitation was coordinated with salvage harvesting and the treatment of burned Crown land.

Other plan submission delays were caused by the need for terrain stability assessments and archaeological overview assessments, by negotiating appropriate seed mixes, by limited access to fires, by the complexity of decisions on what areas should be salvaged, by staff being assigned to the suppression of other fires, and by negotiating rehabilitation with numerous land managers.

Finally, the onset of winter played a role. On the Pat Creek 3 fire in the Columbia Forest District, weather completely prevented field work from being done, and that rehabilitation plan was not completed in 2003. Similarly, on the Pat Creek 4 fire, a plan was not prepared, but the site was reviewed by a geotechnical engineer. Plans call for both of these sites to be revisited in the spring of 2004.

These understandable and valid reasons for plan submission delays raise the question of whether the legisiated 10-day period for plan submission is appropriate. Protection staff agreed that in a 'normal' fire season, 10 days is usually sufficient. However, the size of the 2003 fire program strained resources, with one result being that the 10 day period could not always be met.

Rehabilitation work often begins before rehabilitation plans are approved, and FRPA does not prohibit that. The goal is to begin rehabilitation efforts as soon as possible, while equipment is still on site, to minimize the environmental impacts of fire suppression activities. In some situations, rehabilitation can be completed before a fire is suppressed, such as when fires are 'patrolled' over the winter and not declared 'out' until the spring.

The 10-day period appears to be arbitrary. Timely stabilization of sites and the prevention of erosion should be done regardless of whether or not a plan is submitted to the designated forest official within 10 days of the fire being suppressed. We may make recommendations regarding the appropriateness of the 10-day period when the field portion of the investigation is completed.

Conclusions

The purpose of this interim report is to determine if fire rehabilitation plans are being prepared by government where required, and to identify rehabilitation issues and challenges.

We found that a large majority (52 out of 64) of plans were prepared and submitted to the designated forest official in accordance with the requirements of subsection 36(3) of the FFPSR. For the remaining 12 plans, we found that the reasons for not submitting the plans for approval

within the required time were legitimate. This situation suggests the need to revisit the 10 day requirement set out in FFPSR.

Our interviews with ministry protection staff identified a number of rehabilitation challenges and issues. The issues can be grouped into differing expectations, planning and training, and coordination.

Differing Expectations

There is a difference between what is required to be rehabilitated after a fire and what the public and agencies may expect to be rehabilitated. Managing these expectations takes time and resources, and, if not dealt with proactively, can delay rehabilitation.

Planning and Training

Advance knowledge of values such as old growth management areas or cultural heritage features means that staff can plan around them as part of the suppression plan. It is easier to avoid impacting a feature than to attempt to rehabilitate it later.

If staff are trained to recognize situations where rehabilitation may be difficult or impossible, such as steep, highly erodible terrain, they may be able to avoid impact to those areas and thereby minimize future rehabilitation difficulties. Best management practices for rehabilitation would also be a valuable resource for protection staff.

Early and continuous assignment of an individual responsible for rehabilitation of a fire will help to reduce rehabilitation costs and obligations. He or she can begin discussions with other agencies and make efficient use of equipment no longer needed for suppression. That said, continuous assignment of an individual can be difficult in a fire season like 2003, as experienced staff are often needed on other fires.

Finally, prior agreement on an appropriate seed mix with the land manager will help to expedite rehabilitation. Regional seed guidelines are currently under development in at least one forest region.

Coordination

Coordination of salvage activities and rehabilitation is key to reducing costs and inefficiencies, by ensuring that roads are not deactivated if they will be opened up again when logging begins.

Next Steps

During the summer of 2004, we will visit a sample of 2003 fires to determine if rehabilitation activities were effectively implemented as planned.

Recommendations

The Board may make recommendations once this project is complete.

Appendix 1: Map of Provincial Fire Centre Areas

Source: BC Ministry of Forests

Appendix 2:
2000-03 Fires Larger than 250 ha (April 29, 2004)

Year	Fire Centre	#	Fire ID	Size (ha)	Location	Date fire out	Date rehab plan submitted	Met 10 days?	District
2000	Kamloops	1	K60217	413	Thynne Mtn	2000/09/15	2000/08/22	Yes	Cascades
		2	K50239	311	Cool Creek	2000/10/23	2000/08/28	Yes	OK / Shuswap
	Southeast	3	N70656	357	Irishman Creek	2000/09/08	2000/09/06	Yes	Kootenay Lake
	Cariboo	4	C50174*	680	Klina Klini River	2000/11/03	No action fire	N/A	Chilcotin
2001	Kamloops	5	K60256	2,450	Friday Creek	2001/11/26	2001/08/30	Yes	Cascades
	Southeast	6	N20157	300	Whiteswan	2001/08/07	2001/07/13	Yes	Rocky Mt
		7	N40186	725	Sullivan	2001/10/10	2001/07/20	Yes	Columbia
		8	N40194	412	Game Creek	2001/10/10	2001/07/20	Yes	Columbia
		9	N50413	501	E of Trout Lake	2001/09/14	No plan. FRBC $	Yes	Arrow
		10	N10464	343	5km E. of Fernie	2001/10/31	2001/09/24	Yes	Rocky Mt
		11	N20476	2,092	S Gibralter L/O	2001/10/15	2001/09/09	Yes	Rocky Mt
		12	N20479	517	S Gibralter L/O	2001/10/15	2001/09/09	Yes	Rocky Mt
2002	Kamloops	13	K70109	1,420	Seton Lake	2002/10/17	2002/07/21	Yes	Cascades
		14	K20348	258	Roper Hill	2002/09/30	2002/09/09	Yes	Kamloops
2003	Kamloops	15	K50661	3,300	Vaseux	patrol	2003/11/12	Yes	OK / Shuswap
		16	K50628	25,912	OK Mountain Park	patrol	2003/10/04 & 22	Yes	OK / Shuswap
		17	K20627	11,400	McGillvray	patrol	2003/10/21	Yes	Kamloops
		18	K20624	7,635	Venables Valley	patrol	2003/10/21	Yes	Kamloops
		19	K70620	2,525	Pyramid Mt.	2003/10/31	2003/09/30	Yes	Cascades
		20	K10612*	252	Mud Lake	2003/09/09	No action fire	N/A	Headwaters
		21	K70611	561	Kwoiek Creek	2003/10/31	2003/09/30 see K70620	Yes	Cascades
		22	K30605	2,133	E Perry/Rocky Creek	2003/11/20	2003/09/25	Yes	OK / Shuswap
		23	K30607	318	Queest Mt.	2003/09/30	2003/08/25	Yes	OK / Shuswap
		24	K30592	822	Longridge	2003/11/30	2003/10/15	Yes	OK / Shuswap
		25	K40566*	966	Lindmark Trail	2003/09/23	No action fire	N/A	OK / Shuswap
		26	K10306*	1,384	Barella Creek	2003/11/10	No action fire	N/A	Headwaters*
		27	K10477*	328.3	3 Miles N Murtle Lake	2003/11/10	No action fire	N/A	Headwaters*
		28	K40469	1,645	Derry Creek	2003/10/31	2003/09/22	Yes	OK / Shuswap
		29	K30465	676	Blais Creek/Anstey Arm	2003/11/30	2003/09/13	Yes	OK / Shuswap
		30	K30464	1,150	Anstey River N of Seymour	2003/11/30	2003/09/13	Yes	OK / Shuswap
		31	K30333	1,602	Perry River-692 Rd	2003/11/30	2003/09/17	Yes	OK / Shuswap
		32	K20436	3,980.90	Vermelin Creek	patrol	2003/10/21	Yes	Kamloops
		33	K40390*	445	Vigue Creek	2003/09/30	No action fire	N/A	OK / Shuswap*
		34	K40358	1,462	Mt. Beaven	2003/11/25	2003/09/30	Yes	OK / Shuswap
		35	K40300	1,620	Cedar Hill	2003/10/10	2003/10/14	Yes	OK / Shuswap
		36	K20298	5,731	Strawberry Hill	2003/12/30	2003/10/15	Yes	Kamloops
		37	K20272	26,345	McClure	patrol	2003/10/30	Yes	Kamloops
		38	K10244	1,050	Hellroar	2003/11/20	2003/10/15	Yes	Headwaters
		39	K50195	1,230	Chapman Rd/Anarchist Mt	2003/08/29	2003/11/05	No	OK / Shuswap
	Southeast	40	N70923*	505	Hamil Creek	2003/12/05	No mechanical guards	N/A	Kootenay Lk

Year	Fire Centre	#	Fire ID	Size (ha)	Location	Date fire out	Date rehab plan submitted	Met 10 days?	District
							established		
		41	N70820	4,839	Kuskanook	active	2003/12/17	Yes	Kootenay Lk
		42	N40776	300	Sorcerer	2003/11/17	2003/10/09	Yes	Columbia
		43	N40770	1,195	Scrip Creek	2003/12/05	2003/10/11	Yes	Columbia
		44	N10748	1,500	Cummings Creek	2003/09/19	2003/11/07	No	Rocky Mt
		45	N40741	1,073	Fissure Creek	2003/12/08	2003/10/21	Yes	Columbia
		46	N40719	356	Wood Arm	2003/12/03	2003/10/20	Yes	Columbia
		47	N70700	3,869	Skinner Creek	under control	2003/10/16	Yes	Kootenay Lk
		48	N10694	4,000	Plumbob Mt.	2003/09/23	2003/11/18	No	Rocky Mt
		49	N10689	5,300	Ram Creek	active	2003/09/16	Yes	Rocky Mt
		50	N40640	497	Bluewater Ck Riv 2	2003/10/31	2003/10/21	Yes	Columbia
		51	N50617	6,700	Ingersol	2003/11/12	2003/09/16	No	Arrow
		52	N70578	801	Mission Creek	2003/12/15	2003/10/20	Yes	Kootenay Lake
		53	N40571	702	Pat Ck 4	2003/11/20	No plan	No	Columbia
		54	N40570	700	Pat Ck 3	2003/12/01	Plan not completed due to weather	No	Columbia
		55	N70562	1,472	Kokanee Glacier Park	2003/10/27	2003/11/03	Yes	Arrow
		56	N70566	7,916	Kutetl Creek	Active	2003/11/28 and others	Yes	Arrow
		57	N40550	592	Smith Creek	2003/10/31	2003/10/21	Yes	Columbia
		58	N70502*	789	N end of Lake Creek	2003/12/05	No action	N/A	Arrow*
		59	N70293*	2,009	Geigrich Creek	Under control	No action	N/A	Arrow
		60	N70475	728	Puddingbowl Creek	2003/11/23	2003/10/16	Yes	Arrow
		61	N70474	1,087	Hall Creek	2003/11/23	2003/10/16	Yes	Arrow
		62	N10470	11,882	Lamb Creek	2003/09/25	2003/11/4 & 12	No	Rocky Mt
		63	N40464*	320	Windy Creek	2003/10/31	No action	N/A	Columbia
		64	N70454	686	Cowley Mt.	2003/12/11	2003/10/23	Yes	Arrow
		65	N50451	530	Burton	2003/10/10	2003/10/03	Yes	Arrow
		66	N50395	1,982	Halfway River	2003/10/15	2003/11/13	No	Arrow
		67	N40396	680	Liberty/Fisher Creek	2003/12/04	2003/10/16	Yes	Columbia
		68	N70357*	270	Akokoli Creek	2003/12/08	No mechanical guard	N/A	Kootenay Lk
		69	N10355	1,006	Dewar Creek	2003/08/25	2003/10/22	No	Rocky Mt
		70	N20321	10,708	Middle Fork/White River	2003/09/18	2003/10/23	No	Rocky Mt
		71	N20289	1,018	Harrogate/ Hot Creek	2003/09/15	2003/10/10	No	Rocky Mt
		72	N20267*	3,500	White N of Mayook	2003/08/25	No action	N/A	Rocky Mt
		73	N20269	3,543	Magnesite Creek	2003/09/08	2003/10/26	No	Rocky Mt
		74	N40198*	297	Albert Creek	2003/10/23	No action	N/A	Columbia
	Cariboo	75	C40305	1,500	SW of Bonaparte Lake	2003/11/28	2003/09/17	Yes	100 Mile
		76	C50214	29,201.70	Chilko Lake/Taseko R.	2003/11/25	2003/10/24	Yes	Chilcotin
		77	C50199	1,867	East Side of Tatla Lake	2003/11/10	2003/07/30	Yes	Chilcotin

* These fires were not included in the report sample because no heavy equipment used on the fire and, therefore, no rehabilitation plan was required.

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